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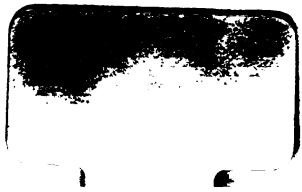

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DR. WATERHOUSE'S

# PUBLIC LECTURE,

ON THE

PERNICIOUS EFFECTS OF SMOKING CIGARS.

FIFTH EDITION.

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*Cautions to Young Persons concerning Health,*

IN A

# PUBLIC LECTURE

DELIVERED AT THE CLOSE OF THE

MEDICAL COURSE IN THE CHAPEL AT CAMBRIDGE,

NOVEMBER 20, 1804;

CONTAINING THE GENERAL DOCTRINE

OF

# DYSPEPSIA AND CHRONIC DISEASES;

SHEWING THE EVIL TENDENCY

OF THE

# USE OF TOBACCO

UPON

## YOUNG PERSONS;

MORE ESPECIALLY THE

## PERNICIOUS EFFECTS OF SMOKING CIGARS.

WITH OBSERVATIONS ON THE

USE OF ARDENT AND VINOUS SPIRITS.

BY BENJAMIN WATERHOUSE, M. D.
Professor of the Theory and Practice of Physic, and Lecturer on Natural History in the University of Cambridge, New England.

—Ut sit mens sana in corpore sano.—Juv.

FIFTH EDITION WITH ADDITIONAL NOTES.

CAMBRIDGE:
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TO THE

## MEDICAL STUDENTS, RESIDENT GRADUATES,

AND

## SCHOLARS OF EVERY CLASS.

Your application for a copy of my Lecture for the press, indicates a disposition to persevere in the general resolution to relinquish an unhealthy and unseemly practice.

I shall set a value on this production, should I hereafter find, that it has, in any way, assisted you in the attainment of that greatest of all earthly blessings, "A SOUND MIND IN A SOUND BODY."

BENJAMIN WATERHOUSE.

*Cambridge, January*, 1805.

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# INTRODUCTION

TO THIS

# SECOND AMERICAN EDITION.

SEVENTEEN years ago, the Students in the University asked and obtained permission to publish this Lecture "*on the pernicous effects of smoking cigars.*"

Since then, a new edition has appeared in London; and a French one at Geneva. A German translation was made and published in the year 1808 at Vienna, by the learned Dr. De Carro. It has been reprinted in detached portions in South Carolina, with comments by the late eminent historian and physician Dr. Ramsay; and several Presidents or Rectors of Colleges, in different States, have caused it to be read in their chapels, as a warning to the young men under their care.

This evidence of its utility has induced the author to print a new edition; and to add some letters and a few notes not to be found in the former impressions; all tending to add weight to his "*cautions to young persons concerning health.*"

Parents, guardians, instructers, masters, and other considerate people are alarmed at the revival of a custom, which this Lecture once nearly banished. Reflecting people see the necessity of again calling loudly on the youth not to sacrifice their blooming health to the indulgence of one of those self-created appetites that is neither meat, drink, nor clothing;—nothing that pleases the eye, charms the ear, or gratifies the touch; but the mere unseemly habit of *steeping* "*their senses in forgetfulness.*"*

The author has received many letters from clergymen, written in the language of extenuation. Excluded as they are from the indul-

* Shakspeare.

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gences common with ordinary men, they are loath to give up a gratification not absolutely sinful; and yet they are unwilling to stand conspicuous examples of a practice, which they are inclined to discountenance in their children. After reading this Lecture, in which it is said that "*no rigidly virtuous man ever became a slave to tobacco,*" several of them renounced the use of it entirely; many more restricted the number of cirgars from six in a day to two, and some to one. Not a few have confessed, that they never encountered a harder task. Such is the tyranny of custom and habit over even this virtuous order of men!*

The following letters from the late Governor SULLIVAN, will be read with peculiar pleasure by those who recollect his energetic mind, and patriotic virtues.

LETTER FIRST.

*From Governor* SULLIVAN *to Doctor* WATERHOUSE.

Boston, 2d March, 1805.

SIR,

I thank you for your politeness in sending me a copy of your Lecture, delivered in our university, against the use of tobacco. I have been much entertained with the production: and find that it has gained the attention of the rational part of the community, as far as it has circulated; and I hope it will be generally read.

That essay has led me into a retrospective view of facts and circumstances; some of which had, years ago, been laid by in the recesses of forgetfulness. It has also connected them with observations more recent, even up to the present day.

When I was a boy, I longed, with great impatience, to be old enough to hold the tube of wisdom,† and puff the smoke of science; for I then saw the pipe connected with the mouths of judges, esquires, lawyers, clergymen, and physicians. When I arrived nearly to adult years, I anticipated the appearance of manhood, by commencing smoker; and, while a student in a lawyer's office, was a great one. The consequence was, that I was never free from what we, in vulgar language, call "*the heart-burn,*" a corrosive acidity irritating the stomach. This was followed by, or rather attached to an occasional bilious colic,

* Very few clergymen in our cities and seaports use tobacco, in any form, at this time [1822].

† Before the introduction of cigars, the *Glocester-pipe* of England, and the *Gouda-pipe* of Holland were to be seen every where in North America.

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alternating with a cold watery stomach. A good constitution and neglect of the tobacco pipe gave relief from those complaints, but the former practice had laid the foundation of an habitual rheumatism; and I have not the least doubt but that those complaints were all the result of a waste of saliva, incident to smoking tobacco.

I have occasionally taken a cigar after dinner, since they came into fashion; but it has never failed to render me dull and heavy, to give my stomach a sense of unnatural weight, interrupt my usual alertness of thought, and to weaken the powers of my mind in analysing subjects, and defining ideas.

Leaving myself, I shall now attend to my friends, among whom I have witnessed multiplied evils from the use of tobacco.

The tobacco-pipe excites a demand for an extraordinary quantity of some beverage to supply the waste of the glandular secretion, in proportion to the expense of saliva. In the interior country, where wine is not much in use, *rum and water*, and *brandy and water* are the common substitute. With this, the smoker bends one arm around the back post of his chair, resting his feet on the table, or on the moulding over the fireplace; and in that posture, with the pipe in his mouth, he appears like a fool while he conceits that he looks like a philosopher. These indolent habits soon reduce him to a state of low inebriety, or dram drinking, and he finishes his life as a sot.

Examples of suffering among people in private life do not make the same depth of impression on mankind, as they do where they are extracted from the lives of men of public character and consequence. This is the habitual constitution of human nature, founded in education and custom; and there can be no advantage derived from a controversy with it.

You know that the late Governor Hancock and myself were on the terms of intimate friendship. He was a temperate man, as it regarded the use of wine and ardent spirits. His constitution was naturally weak, and he injured it by the use of lemon juice in that beverage called *punch*. From this, among other things, he was afflicted with gout. He was an immoderate chewer of tobacco; but being, as you know, a well bred man, and a perfect gentleman, he, from a sense of decorum, refrained from spitting in company, and in well dressed rooms. This produced the habit of swallowing the juice of the tobacco. The consequence of which was, his stomach became inactive, and a natural appetite seldom returned; the agreeable sensations of hunger could not be experienced, but by the use of stimulants, to satisfy which, he swallowed more food than his

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digestive powers could dispose of. This derangement in chylification increased his gout; his stomach became paralytic, and he died at the age of fifty-eight.

The reverend, learned, and elegant Doctor Cooper was your friend and my friend. His constant use of snuff injured his health, and hurt his voice as a public orator. He was grievously afflicted with headach; which, at last, became unremitting, and would not yield to the force of medicine. I sat by him during the last night but one before he expired; he was, for the most part, in possession of his reason; but his pain was so excessive, that he described it as if pressing his forehead with a mighty weight.*

My own brother, the active General Sullivan, when he became a militia officer, which happened in the early part of his life, began to take snuff. It injured essentially a very fine voice, which he possessed, as a public speaker. When he was an officer in the American army, he carried his snuff loose in his pocket. He said he did this because the opening a snuff-box in the field of review, or on the field of battle, was inconvenient.

He had, at times, violent pains of the head. The intervals grew shorter and shorter, and the returns more violent, when his sufferings ended in a stroke of palsy, which rendered him insensible to pain,—made him helpless and miserable, and lodged him in the grave before he was fifty years of age.

I have no doubt but all this sprung from the use of snuff.

I have known some persons, who have lived to a great age in the extravagant use of tobacco. I have known many more, who had lived to a greater age in the excessive use of ardent spirits: but those, who have thus had their lives prolonged, in both cases, bear but a small proportion to those who have, by both habits, been swept away into the grave in early or middle life. I consider the longevity of patients in both instances, to be merely an irregular sport of nature, and as incompetent on which to establish a principle as the instances of albinos, or white negroes.

Should it be said, that the instances mentioned are the consequences of the *excessive* use of tobacco, and not from the nature of the plant, I would ask what can enable a young man to controul a fixed habit, which a violation of natural sensations has rendered agreeable to him, when, seduced by fashion, he could not, at first, resist the

* A great quantity of hardened Scotch snuff was found, *post mortem*, between the external nose and the brain.

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temptation of offending every feeling of his nerves, by the use of a plant so nauseous?

Wishing you complete success in your attempt to eradicate a practice so inconsistent with health as well as politeness,

I remain your friend,

&c. &c. &c.

JA. SULLIVAN.

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LETTER SECOND.

*From the same to the same.*

Boston, March 11th, 1805.

SIR,

Accept my thanks for your polite attention. I have read the letters addressed to you by the late President ADAMS, on the subject of your lecture against the use of tobacco, with great satisfaction. And I rejoice that, in an exertion so laudable, in which the health as well as the reputation of our country is so much interested, you have the support of so great and venerable a character.*

But, alas! what can be done? Experience holds out her weary hands to the rising generation. Wisdom, in the hoarse voice of centuries, calls to them to attend; yet one column of mortals, boasting the distinction of intellect, rolls down the slope of time, to give place

* The letter, to which Governor Sullivan refers, from the then President of the United States, contains the following paragraph.

"I have some reason for speaking of the effects of tobacco, it being more than three score years since I commenced its use, while a boy, skating on the ice. Addicted as I was to chewing tobacco from childhood, I can testify to the facility and safety of the sudden discontinuance of it. Twice I gave up the use of it; once when minister at the court of the Hague; and afterwards, when minister at the court of London; for no such offensive practice is seen there."

In the same, and in subsequent letters, Mr. Adams expatiates on the bad effects of an intemperate use of tobacco in any form; and closes with observations on the use and abuse of ardent and vinous spirits; gives his opinion of the effects of the liquors of Europe, from the Burgundy and Champaign of France, down to the porter and small beer of Old England, and concludes with saying that, the small red wine of Bourdeaux is the liquor most lastingly agreeable to the generality of people in Europe. But after all, he gives the preference to our own country cider, as a table-beverage; and says he has heard it observed, by the oldest and most experienced physicians in various parts of the United States, that the men most remarkable for longevity have been cider-drinkers. His own case may be here adduced; for at an age (in 1822) approximating to ninety, he is consulted on subjects the most interesting to man, and listened to, as to an oracle.



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to another, while the succeeding one makes no new impression on the surface of obstinate customs, or irrational habits.

I wish some of our young gentlemen could be made to reflect how inconsonant the use of tobacco is with a refined society. The young man, whose breath is contaminated with this disgusting weed, is unfit for the ball-room, the concert, or any such social circles. The smoker is bad enough, but the chewer is more disgusting; and no one gives himself up to it without suffering in the esteem of the ladies. Because the habit has blunted his own sensibilities, he is incapable of judging of the sensibility of others. This is not all. Is he not destroying those sensibilities, which a beneficent Creator had bestowed on him for his safety and enjoyment?

The savages have a correct idea of the power and use of tobacco. It is their *narcotic*, or *dry dram*. They get drunk with it, and so stupify their senses after the fatigues of the chase and a gluttonous meal. At other times they use it to allay the torments of hunger, when they have not the means of satisfying it; as often happens in their vagrant life.

I have no very great objection to granting your request; but I had no intention of submitting my former letter to the public eye; nor do I now suppose that my approbation of your doctrine would add a grain to the weight of your influence. If there be in this, or in that, any idea worthy your notice, it will be received as coming from you with more attention than from

Your friend and humble servant.

JA. SULLIVAN.

To Dr. B. WATERHOUSE,
Professor of Theory and Practice of Physic in the University in Cambridge.

These instances are striking and decisive of the pernicious effects of tobacco, in four distinguished public characters, in the form of *smoking*—*chewing*,—and *snuffing*.

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LETTER THIRD.

*From the late Dr.* DAVID RAMSAY *of Charleston S. C. to the late Rev. Dr.* ELIOT *in Boston.*

August 12, 1805.

* * * * * * *
* * * * * * * * &c.

I have read, with great pleasure, Dr. WATERHOUSE's excellent Lecture on the subject of *tobacco* and *ardent spirits*, and have circulated it far and near. The editor of the Charleston Courier has promised me to make large extracts from it in his newspaper, and in his Monthly Register; which is the only periodical paper in South Carolina.

I wish the heads of Colleges were furnished with this publication; and that they would make the use of tobacco PENAL. I shall write to my friend Dr. Smith of Princeton on this subject. Dr. Waterhouse's reward, at least in the Southern States, will be chiefly from the reflection that he has, by this publication, added to the literary character of his country, and done much good to its inhabitants. I declare that I have never read a pamphlet of the same size with this lecture, which is likely, in my opinion, to do so much good among the misguided youth of the United States. Tobacco is bad with you, but much worse here, where we have no surplus of stamina to throw away. I hope Dr. Waterhouse will go on enlightening his country; and great will be his reward in that which is of more value than money.

---

LETTER FOURTH.

*From Dr.* BENJAMIN RUSH, *Professor of Physic in the Medical School of Pennsylvania, to his friend in Boston.*

August 8, 1805.

* * * * * * *

WE all owe many thanks to Dr. WATERHOUSE, for his most excellent Lecture on the pernicious use of tobacco. That loathsome weed is spreading *disease* and *vice* through every part of our country; for it leads to intemperance in the use of ardent spirits. I see no prospect of our lessening the evil while the practice of smoking and chewing is so general among *clergymen* and *professors of colleges.** The manners of our young men are formed chiefly by them; I wish some disgrace could be attached to this practice.

* This is by no means so much the practice among that respectable order of men now (1822) as when Dr. Rush wrote the above letter.

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LETTER FIFTH.

The following is from Mr. JEFFERSON, when PRESIDENT of the UNITED STATES.

TH: JEFFERSON *to Dr.* WATERHOUSE.

Legerat hujus amor titulum nomenque libelli;
Bella mihi, video, bella parantur, ait.

So Ovid introduces his book *Remediorum Amoris.* A lecture on tobacco was calculated to excite a similar alarm in a Virginian, and a cultivator of tobacco. However, being a friend neither to its culture, nor consequences, I thank you for the pamphlet; and wish a successful opposition to this organ of "Virginia influence," as well as to every other, injurious to our physical, moral, or political well being. Accept my friendly and respectful salutations.

*Washington, March 9th,* '05.

REFORMATION is apt to run to extremes.—There are old men, who have been in the habit of smoking daily, all their lives, from boyhood. Such persons cannot, at once, renounce the practice, without risking their health; especially when liable to attacks of asthma, or if subjected to copious excretions from the lungs, stomach, and fauces; for in old age the skin perspires less, and the lungs transpire more. Here the common air seems insufficient for propelling the wheels of their breathing and circulating apparatus without the aid of smoke. Beside, when a man is very far advanced in life, and uses neither ardent nor vinous spirits, and has, from a defect of sight, no resource of amusement in books—it would be injudicious—nay cruel, to attempt to deprive the *Octogenarian* of the solace, which a pipe of tobacco actually affords. Here *nicotiana* is an agreeable medicine, infinitely preferable to spirituous liquors, or pharmaceutical compositions made from them, under the treacherous title of elixirs and tinctures.

*Cambridge, May,* 1822.

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A

# PUBLIC LECTURE

ON THE

## PERNICIOUS EFFECTS OF SMOKING CIGARS.

GENTLEMEN,

During the first three or four years of our Medical School, I frequently found it needful to give public lectures in this place. Even eight or ten years after its establishment, it was customary to commence and close the medical course by a public lecture in the chapel.* The custom however has been discontinued several years, as nothing special excited a wish to address you altogether. Whether its revival at this time be for a trivial or beneficial purpose, you yourselves will judge.

When our venerable forefathers fixed upon this spot, as a fit place for the education of youth, they doubtless had regard to the health of its inhabitants. A gravelly plain, near the banks of a tide river, and in the proximity of the sea, together with good springs of pellucid water, must have led our sagacious ancestors to conclude, that this was a salubrious spot for a college. Time has done honour to their judgment; as, during one hundred and fifty years, the town of Cambridge, and the College have exhibited a succession of joyful instances of juvenile vigour, healthy manhood, and comfortable old age. From observations, made

* A *public* lecture means here an address to the students of the University of every rank and class.

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by the late learned Dr. WIGGLESWORTH,* it appears, that there occured fewer, much fewer deaths, among the collegians, than among any set of young men in any part of the Commonwealth. Since my connexion with this University as Professor, I can bear testimony to the healthiness of the inhabitants of the town in general, and of the students in particular†. I have noticed the young men within these walls with pleasure, as a blooming, cheerful, hungry assemblage of youthful activity. But does this charming picture any longer exist? Is it not faded and fading, like a flower, that has passed its bloom, and which is about to wither on its stalk? If this idea be just, surely the *cause* of this faded aspect in the plants of our Seminary call loudly and affectionately for investigation. If the full bloom of exuberant health once marked and adorned these seats, and this bloom is fled, or fleeing away, it is certainly an object of prime importance to inquire, *whence this* DETERIORATION? Were I not persuaded, that it might be traced to a moral as well as a physical source, I would not have appeared at this time before you. My motive is your welfare and the happiness of your parents; for what are riches and knowledge with-

* This worthy gentleman was Professor of Divinity. His death, which happened in June 1794, the author has never ceased to lament. To him we principally owe the MEDICAL INSTITUTION, founded here in 1782. By opening a correspondence with *Principal Robertson* and the *Medical Professors* at Edinburgh, he matured the plan, and lived to see it flourish. Dr. WIGGLESWORTH first suggested to the CORPORATION the idea of establishing *Lectures* on *Natural History*. Confidence in his *prediction* enabled the Lecturer to continue them from that period (1788) to the present.

† Dr. PEARSON, Professor of Hebrew and Oriental Languages, remarks, in a lecture given in this place, and published since this was delivered, that "from 1769 to 1796, a period of twenty-seven years, but nine deaths took place among the undergraduates. But from 1796 to the present time, a period of little more than eight years, *sixteen* students terminated their probation for eternity, before they had completed their academic course; and what deserves particular notice, most of them died of *consumption*. During the period first mentioned, the deaths were to the years, as 9 to 27, or as 1 to 3, that is, *one* death in *three* years. During the last period, the deaths have been to the years, nearly as 16 to 8, that is, *two* deaths in *one* year. Hence it appears, that the number of deaths among undergraduates, during the last eight years, compared with that of the preceding twenty-seven years, has increased nearly in a *sixfold ratio*; a result, worthy of serious consideration; especially, when it is added, that *four* of these melancholy events took place in *one* year, and *six* of them in *one* class. In this connexion I am constrained to add that, during the two last years, and soon after receiving the first honors of this University, four others have been numbered with their deceased companions, alike victims to *consumption*."

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out health to enjoy them? But alas! the young, the gay, and the giddy abuse health through ignorance; and when better informed, some of them refuse to stop, or lend a listening ear to the warning voice of Nature and common sense; while "*he that taketh heed prolongeth his life.*"

It is proper to inform you, that we are led in the order of instruction to speak, at this period of our course, *of those disorders which mankind bring upon* THEMSELVES *by their* OWN IMPRUDENCE.

It was a sagacious saying of one of the ancients, that "GOD *sends* ACUTE *diseases, but* CHRONIC *disorders we create ourselves.*"

ACUTE diseases are such as proceed with rapidity, and terminate soon; such are violent fevers, plurisies, quincies, and epidemical disorders. Hence they are generally owing to a cause, that "walketh in darkness," being such as prudence could not obviate, nor prescience guard against.

CHRONIC diseases are those, that come on slowly, and continue long. We place under this head *depraved appetite, jaundice,** and the long and gloomy train of *nervous disorders.* To these we may add *gout, asthma,*† *palsy,* and *apoplexy;* as well as that imbecility or morbid derangement of the absorbent system, occasioning *dropsies;* which is accompanied by that generally depraved habit of body, known among physicians by the name of *cachexia;* all of which are owing to *chronic weakness;* the source of which is an imbecility of the digestive organs, occasioning errors in "the first concoction," which deranges the whole chain of processes, between chylification and sanguification.

Perfect health requires the temperate action of the vital influence through every part of the system. In perfect health food is sought with appetite, enjoyed with relish, and digested with facility. "In perfect health every secretion and excretion is duly performed. Perspiration is neither deficient nor excessive. The breathing is free and easy, requiring neither conscious exertion, nor even a thought. The action of the heart and arteries with the

* That species of jaundice, especially termed Icterus *mucosum.* See Van Swieten, § 950.

† That species, denominated asthma *flatulentum;* which, like the gout, palsy, and one sort of apoplexy, takes its origin from long continued affections of the stomach.

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consequent circulation of the blood is regular and placid; neither too rapid nor too indolent; neither laboured nor oppressed. In perfect health the body continues in the exercise of its proper functions without the least sensation of difficulty or embarrassment. The mind, undisturbed by any violent emotions, aggitations, or depressions of a corporeal nature, is in a state for exercising its noblest powers with tranquil vigour. The body is perfectly free from pain, oppression, hebetude, and every species of uneasiness; and a certain vivacity, not to be described, reigns throughout the system."* This happy, but evanescent condition, constitutes the "*mens sana in corpore sano*" of Juvenal, "*a healthy body and a mind at ease.*"

The first derangement of this delightful state is felt in the stomach. Its faculty of communicating impressions, made by various substances taken into it, is such, that it seems more like a nervous expansion from the brain, than a mere receptacle for digesting food. We shall speak of this faculty hereafter; and confine our view at present to the function of digestion.

DIGESTION is the selection and conversion of some foreign pabulum or food into our own nature. There are within us two organs, performing, at the same time, two different kinds of digestion; for while the stomach is digesting *solid substances*, the lungs are digesting *air*.† Digestion of solid substances by the stomach, is the conversion of food into chyle, and of chyle into blood. A regular supply of this milky fluid is necessary to recruit and repair those parts of the animal machine that are incessantly wearing down, and passing off, by the very actions requisite to life. When this function is impaired, and much deranged, the patient languishes, becomes emaciated, faints, and at length dies. If digestion be well performed, that is completed within three or four hours,‡ the chyle is proper, be the food every so various; blood formed from this chyle is natural; the secretions and ex-

* Dr. Cogan.

† While man, quadrupeds, and birds select and inspire *oxygen gass* from the atmosphere by their *lungs*, fish inhale the same vital principle from the water by their *gills*, and plants by their *leaves*. No organized being can live deprived of it.

‡ *Marshal Biron*, who had a remarkably keen appetite, was killed by a cannon ball an hour after dinner. On opening his body not the least trace of food was to be found in the stomach.

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cretions are regular; and health, strength, activity, and cheerfulness ensue. But if digestion languish, the contrary of this will happen, be the food whatever it may.

That the Lungs *digest* air may be to you a novel doctrine. These breathing organs are made up almost entirely of two sets of vessels, one conveying air, the other blood. When we inhale atmospheric air, these organs in the action of breathing separate a portion of that inspired mass, called *oxygen* or *vital air*,* which

* Dr. PRIESTLEY was the first who demonstrated the existence of oxygen gas, or, as he called it, *dephlogisticated air*. That there was such a principle in the atmospheric air was known long before. Not to mention Dr. Hook and Mayow, who were contemporary with Boyle, if we turn to the article AIR in James' Medical Dictionary, which article is compiled from the writings of *Arnaldus de Villa Nova*, and *Boerhaave*, we shall find the following account of the *acidifying* principle in the atmosphere. The upper surface of the blood, says Boerhaave, that is exposed to the air, is of a bright scarlet, while in every other part, which the air does not come at, grows as black, as the blood of the cuttlefish; and yet as soon as ever this black part is laid open to the air, the black colour is immediately changed into a scarlet. This vivifying principle in air, so necessary to the support of flame and fire, as well as animal and vegetable life, seems by every phœnomenon to be the *universal acid*, distributed through the entire atmosphere, in a certain proportion; insomuch, that no portion of air seems to be without it. It is this acid, that corrodes the baser metals. By this acid the calx of vitriol, of alum, and the earth, from which nitre has been procured, are again replenished in such a manner, as to be capable of producing acid spirits afresh. There is reason to suspect, that flowers are obliged to this acid of the air for their beautiful colours. Diers of scarlet cannot strike that colour without the assistance of an acid. Hence the phœnomenon of the surface of the blood, when exposed to air contracting a redness, may be in some measure accounted for. All concerned in dying observe, that a cloudy moist air interferes with the beauty and vividness of their colours; and that a serene sky exalts them, and makes them more elegant. This acid of the air finds some way of mixing with the blood. It is believed, that this *grand operation* is performed in the lungs, and that then the blood acquires a scarlet colour. *In what does this differ from the modern doctrine of* OXYGEN?

To persuade students of the present day to peruse any medical or chemical book, written anterior to forty years, is not an easy task. They suffer under a notion, that all chemical and medical authors, prior to Black and Cullen, composed their works in the dark. Even the writings of the immortal Boerhaave are deemed but of little worth! It has been perhaps at the risk of reputation, that I have recommended from time to time the writings of *Harvey*, *Ruysch*, and *Willis*, in anatomy; *Aretæus Cappadox*, *Prosper Alpinus*, and *Sydenham* in the practice of medicine; and *Wiseman* in surgery; *Arnaldus*, *Van Helmont*, *Stahl*, and *Boerhaave* in chemistry; *Aldrovandus* and *Gesner* in natural history; *Malpighius* and *Grew* in botany; *Hook*, *Hales*, and *Boyle* in natural philosophy; and *Lord Bacon* for the whole Encyclopædia.



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entering the blood vivifies and animates the whole frame; and actually becomes one of the constituent principles of our bodies.* Between this *oxydation* of the blood through the lungs, and the digestion of the food by the stomach, there exists an inseparable sympathy and a beautiful balance. When the stomach is loaded with a superabundance of food, we pant for breath. When we breathe the oxygenated air of the mountains or of the open ocean, we feel not merely a keener appetite, but a greater quantity of food than ordinary will be digested, without oppression of the stomach, or labour of the lungs. In fewer words, it is oxygenation, that excites the dormant energies of the brain and nervous system, which invigorates every fibre, giving strength for debility, and activity for sluggishness.† Such is the conspiration of action between the stomach and the lungs, and such the sympathy of both with the whole human system, that these organs are either primarily, or secondarily affected by every malady that flesh is heir to.

The first intimation of a chronic disorder is almost always felt in the stomach. This wonderful organ has a remarkable contractility, by which it applies the inner surface closely to the materials it incloses.‡ That distressing sensation, called "*a sinking*" at the stomach, is owing to a diminution of its power of contraction. The healthy contractility of this prime organ of digestion is not owing merely to the force of its *own* fibres, but depends on

* The *arterial* blood of professed drunkards approaches to the colour of *venous*; it is darker than usual. It is deoxygenated. The blood of drunkards is strongly charged with hydrogen; which Dr. Trotter thinks must affect the quality of the biliary secretion, independent of any effect it may have on the liver itself.

Mr. Spaulding, the famous Diver, found that, after drinking spirits, the air in his bell consumed faster than when he drank water. *Dr. Trotter's essay on Drunkenness.*

*See Med. & Phys. Journal*, vol. xii. for 1804.

† *Arnaldus de Villa Nova*, an excellent physician, chemist, and philosopher, who flourished about the year 1300, was not ignorant of this exhilirating *something* in the atmosphere. He speaks of a clear, pure air, that makes the heart glad, the mind serene, the body lightsome, at the same time that it accelerates digestion. He speaks of a contrary condition of the air, which disturbs the heart, darkens the mind, makes the body heavy, and retards and hinders digestion.

‡ It can be distended so as to contain five quarts, and contracted so as to contain less than half a gill.

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the joint energy of the whole system, corporal and corporeal; for the more vigorously the stomach applies itself to its contents, the more speedily is digestion performed, and the braver does a man feel, the better does he walk, think, and write.

The disorder progressing, the patient is oppressed with listlessness and sense of weight over all his body; he becomes pale at certain intervals, and a sweat breaks out, irregularly in different parts of his body. Digestion is slow, in consequence of which the patient is distressed with mawkishness, sourness, heartburn, and nausea, with frequent calls for food, from a sense of *sinking;* not from genuine hunger. The distension of the alimentary canal by flatulency increases the distress of the sufferer.*

> "O, then perpetual fears his peace destroy,
> And rob the social hour of all its joy:
> At table seated, with parched mouth he chaws
> The loitering food, which heaves beneath his jaws;
> Spits out the produce of the Albanian hill,
> Mellowed by age; you bring him mellower still,
> And lo! such wrinkles on his brow appear,
> As if you brought Falernian vinegar.
> At night, should sleep his harassed limbs compose,
> And steal him one short moment from his woes,
> Then dreams invade."—— *Juv. Sat. xiii. Gifford's Trans.*

The causes of the disorder continuing to be applied, sleep is disturbed and followed by torpor, bordering on stupidity; the patient's eyes become hollow and lose their vivacity; an universal debility, most sensibly felt in the digestive organs, with an increased or morbid irritability, perverting their regular actions; the pulse is quickened, the breath labours, cough comes on, and consumption follows.

When the fountain of health is thus disturbed, the smallest streams must also be deranged. Can we wonder, then, that the *ultimæ vasculæ* and the *minimæ fibrillæ* of the organ of intellect are finally affected, occasioning despondency of mind; or else peevishness, doubts, fears, wandering thoughts, and ridiculous fancies? The disease seldom proceeds to this in very young

* It is remarkable, that in this state of the stomach, wine is more eagerly desired that at any other time.

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persons.* As, in certain temperaments, imprudence in youth lays a foundation for *hypocondriasis*, in manhood, you cannot be too cautious of the *first* breaches on your tender constitutions. If in youth you transgress the first principles of Nature, she may punish you in future life with a long and dismal train of NERVOUS DISORDERS, than which there cannot be a greater torment. A *nervous* man may escape volcanic eruptions, earthquakes, hurricanes, inundations, mobs, sieges, and revolutions; but whither shall he fly to avoid heats and frosts, a lowering sky, and east winds? To what city or village shall he repair, that is not infested with creaking doors, jarring windows, screaming children, and fretful inmates, to lacerate his *nerves*, and render him the most wretched being under heaven!

Having given you a description of cheerful health, and of its deviation into gloomy disease, let us now see if we cannot discern some general cause or causes, producing this declension.

Moral philosophers unite with physicians of the first rank in opinion, that all chronic disorders arise from either 1. VEXATION OF MIND, or 2. an INDOLENT AND SEDENTARY LIFE, or 3. INTEMPERANCE; or from the cooperation of any two of them; or from the combination of all three.†

It is a melancholy reflection, that there are as many pressed down to the grave by chronic disorders, brought on by a troubled mind, as are cut off by acute ones. Envy, hatred, jealousy, concealed resentment, and the corroding discontents of a life of penury and neglect, have slow but destructive effects on the delicate mind and "fine spun frame." A man is often cheerful under the loss of a limb; and long habit may render a deranged state of health tolerable; "*but a wounded spirit who can bear.*"

The first effect of violent grief or trouble of mind is deprivation of the powers of digestion. A man in the best health, the highest good humour and spirits, as well as good stomach, sitting down to dinner with his friends, receives suddenly some very afflicting

* See CULLEN's distinction between *Dyspepsia* and *Hypochondriasis*, §MCLXXI to §MCLXXV.

† If the reader will cast his eye over *Dr. Cadogan's* treatise on the *gout*, he will see how closely we have adhered to his principles, in this part of our Lecture; principles founded on experience and common sense.

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news; instantly his appetite is gone, and he cannot swallow a morsel. Let the same thing happen after he has made a hearty, cheerful meal, as suddenly the action of his stomach ceases, the whole power of digestion is cut off, as if his stomach were become paralytic; and what he has eaten lies a most oppressive load. Now what connexion is there between a piece of bad news and a man's stomach, full or empty? It is, says *Cadogan*, because the animal spirits or action of the nerves, whatever be the secret cause of their power, are called off to supply and support the tumultuous agitation of the brain, and the stomach with all its appendages and secretions is left powerless and paralytic. In this case the lungs, which always sympathize with the distresses of the stomach, endeavour to relieve their oppression by a deep sigh.

One of the principal agents in the process of digestion is a peculiar fluid, secreted in the stomach, called the *gastric juice*. The quantity and activity of this singular liquor depend on the contractile power of the digestive organ, as a proximate cause; and on the energy of the whole system, as a remote one. In silent, long continued grief this fluid is deficient in quantity and depraved in quality. This chyle is of course vitiated and the functions of the stomach perverted; its contents become sour, bitter, and rancid. The sufferer pines away for want of a nourishing supply; an universal bad habit of body ensues; a complication of disorders succeeding each other always from bad to worse; and unless the wretched person can subdue anxiety, he sinks under his misery, and dies, as is said, of a broken heart.*

In turning away from this sorrowful picture, I wish you to remember, that it is the *stomach* which *first* suffers; and that whatever damps the spirits, injures that organ; and we shall see hereafter, that whatever injures the stomach, depresses the spirits.

Let us now advert to causes more common and more applicable to the main object of this Lecture.

The causes of DYSPEPSIA,† or *bad digestion*, the grand inlet to all chronic disorders, arrange themselves under *two* heads. First, those which act upon the WHOLE body, or particular parts of it;

* See Cadogan on the gout.

† From δύς, *bad or difficult*, and πέπτω, *to concoct*.

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but in consequence of which the *stomach* is chiefly affected. Secondly, those which act *directly* and *immediately* upon the STOMACH itself.* To these we may add a third, viz. causes, which act at the same time upon BOTH.

An *indolent*, and *sedentary life* we place at the head of causes, which act upon the whole body; next to this

*Trouble of mind*, of which we have already spoken; and lastly

A RAKISH LIFE.

Need we go far for arguments to prove, that the only rational creature on earth was destined to exercise and improve the faculties of his mind, as well as the powers of his body? The PARENT OF UNIVERSAL NATURE has imposed, kindly imposed on his children, the salutary task of moderate labour, as the best means of preserving their health and their innocence. He has, in like manner, encouraged them to exercise the towering faculties of their minds by the contemplation of His works; and has given them a thirst after useful science, stimulating them to amend their natural condition. He has accordingly decreed, that the prudent exercise of the corporal and mental powers should strengthen each other. to live a life of indolence is to sin against one of the first laws of our Creator; accordingly we find, that the offender is punished with loss of health and spirits.

The time allotted to a lecture is not sufficient to give a description of the subtle operations of the body. We may remark generally, that our best health, strength, and spirits, depend on the good and natural state of the minutest and almost imperceptible vessels and nerves of the body. The little diminutive pipes and tubes, the extended continuations of larger vessels, must be kept free and open. I consider the body, says *Addison*, as a system of tubes and glands, or a bundle of pipes and strainers, fitted to one another after so wonderful a manner, as to make a proper engine for the soul to work with.† The strength of the heart and arteries alone in a sedentary life is by no means sufficient to keep up and perpetuate the requisite motion of the fluids through these capillary vessels; but it requires the assistance and joint force of all the muscles of the body to propel and accellerate the circula-

* See Cullen's chap. on Dyspepsia.

† Spectator, No. CXV.

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tion of the whole mass of blood, in order to keep these minute tubes pervious and clear.*

That sprightly vigour and alacrity of health, says *Cadogan*, which we feel and enjoy in an active course of life, that zest in appetite and refreshment after eating, which sated luxury seeks in vain from art, is owing wholly to *new blood, made every day from fresh food, prepared and distributed by the joint action of all parts of the body.* No man, says he, can have these delightful sensations, who *lives two days with the same blood.* To introduce *new* juices, the *old* must be thrown off; or there will be no room, there will be too great a plethora or fulness. In a state of indolence or inactivity the old humours pass off so slowly, the insensible persiration is so inconsiderable, that there is no void to be filled; consequently by degrees the appetite or *desire of supply* must daily diminish, and at last totally be lost.† To this doctrine morbid indolence will reply, that this plethoric or crowded state of the system, with all the disagreeable feelings consequent thereon, may be removed by evacuating medicines. There is no reasoning with those, who had rather take a purge, than a walk; an emetic, than a ride.

Some of you injure your health by too close application to study. Sedentary thoughtfulness will wear out the body, and generate diseases that shorten life. A *dyspeptic* stomach, emaciated body, and irritable feelings, compose the heavy tax, which men of fine intellects and deep study pay for their eminence. But there is a sort of lazy literature, a kind of suspended animation, which engenders many chronic diseases, that embitters and shortens life. This torpid state, in which mind and body are equally stagnant, occasions tasteless meals, perpetual languor, and causeless anxiety. Here the body is not *worn*, but *rusts* out. In this state, wine, ardent spirits, and tobacco are eagerly coveted.

* Cadogan.

† Cadogan, whose rational doctrines are here revived, was a disciple of the *humoral* pathology. To feel the full force of his reasoning, the medical student must advert to the distinction between plethora *ad volumen*, and plethora *ad vires*; for the *moles movenda* may be increased, while the *vis motrix* is lessened.—See *Gaubius. Path. Institut.*

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Let us now consider impressions made *directly* and *immediately* on the stomach.*

To remove the sinking, dismal languor and dejection, brought on by offending against the first principles of our nature, men turn for a momentary relief to

INTEMPERANCE:

Which is commonly an application of stimulating and narcotic things to the stomach. But who shall define *Temperance?* a word, like Liberty, different in signification in different countries. Before you can adjust the criterion of temperance, you should visit some of the colleges on the continent of Europe, where a piece of bread, an egg, or an onion with a draught of milk and water, is thought a tolerable meal. There is, however, an absolute, determined temperance, measured by every man's unprovoked appetite and consumption; a mean, at which virtue takes her stand.

If a man go on daily taking more than he needs, or can get rid of, he feels oppressed, his appetite fails, and his spirits sink. Then he has recourse to rich, stimulating food; and though he washes down each mouthful with a glass of wine, he can relish nothing.† Thus distressed, he applies to the Doctor *to give him an appetite!* who, after evacuating him upwards and downwards, gives him *aromatic bitters* infused in *wine* or *brandy, elixir of vitriol; bark, oil of wormwood, steel, columbo; soap, aloes,* and *rhubarb; quassia* and *limewater.* Some of these, by giving contractility‡ to the

† See Governor Sullivan's first letter. ‡ See page 18.

* Opportunities of looking into the stomach of a living subject are very rare indeed. I remember but two instances on the records of medicine. One was a woman, who was in the general hospital at Vienna, in 1798. She had her stomach perforated by a wound, which could not be closed up. Through this wound her food might be seen. When any indigestible food created uneasiness, as *sour crout*, she took the oppressive food out with her fingers, and washed out her stomach with water, and this always relieved her, and revived her appetite. Milk was observed to crudle instantly, except when she had carefully rinced out her stomach. In this case, says *Dr. Helme*, the coagulation did not take place, till after some time, for want, he supposes, of gastric liquor. The coagulation could be expedited by irritating the inner surface of the stomach with the finger. Asses' milk was longer in coagulating than cows' milk. The last coagulated in a few moments. Eggs and cheese were quickly digested, but not so soon as flesh meat. Vegetables in

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imbecile organ afford a short respite to his sufferings. They may moreover effect a transient but fallacious relief, by forcing the concocting powers to squeeze their crude, austere contents into the blood; until at length, oppressed Nature resents the injury in the form of *gout*, *palsy*, or *apoplexy*.* A skilful, honest physician will say, in such cases,—your cure can only be found in EXERCISE. A ride, with the cheerful scenery of a new and beautiful country,

general were longer undergoing this process; of these, potatoes and carrots passed off soonest.

Giving publicity to this case has sometimes occasioned a little merriment at my expense. Some of my friends would, now and then, inquire after the good woman with *a hole in her stomach!* and one of them, a reverend gentleman, seriously advised me to leave out in my next edition, "the *German woman* with A HOLE IN HER STOMACH!" I said little, but wrote to my correspondent, *Dr. De Carro*, a gentleman, distinguished at Vienna, and in literature; and who, by sending matter from that city to Bagdad, laid the foundation of the oriental vaccination. His answer fully satisfied my queries respecting a woman, who could give *visible* proofs of the powers of her digestive organ. "There is not," says *Dr. De Carro*, "the least doubt of the truth of the case, which you have mentioned in page 24 of your printed lecture. Several of my medical friends have invited this woman to dinner, in order to see such an extraordinary patient. Your lecture is undergoing a German translation, in which I shall notice this extraordinary case. I know *Dr. Helm* perfectly well, and you may rely on the accuracy of his report. In the supposition that the original publication has not reached you, Dr. Helm here sends you his book." From the book I learn that this woman, named *Theresa Petz*, was the wife of a blacksmith. She was strong, and in general healthy; the mother of seven children. She sometimes worked in the fields, and *sometimes in the blacksmith's shop with her husband*. She at length had a tumor in the pit of her stomach, which was unanimously declared by the physicians to be an induration of the spleen. This tumour at length broke through the membranes, muscles, and skin, leaving an opening of *two inches in diameter, directly into the cavity of the stomach*. The margin of it was callous, and almost as hard as gristle; but, being destitute of cuticle, was painful when touched. When she rode in a wagon, or was subjected to considerable motion, the bile came into the stomach, and issued from the orifice; it tasted very bitter; did not mix with the gastric juice, but instantly curdled the milk mixed with it. Dr. Helm often introduced a catheter as far as the upper, and the lower orifice of the stomach, without giving the least pain to the patient, or provoking the smallest disposition to vomit. She would frequently wash out her stomach with milk and water, through the external orifice; and as frequently relieve herself from any food that oppressed her, by taking it out with her fingers. But to remove all doubt from my mind, Dr. Helm, of Vienna, has sent me the identical perforated tubes of wood, and of metal; and also the identical little linen bag, which he had used to ascertain the powers of this woman's stomach upon various articles of food; which were put in and taken out of her stomach, as you would buiscuit in and out of an oven!

* See Cadogan.



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will give you health, vigour, and vivacity, sound sleep and a keen appetite. But no drugs can act upon your blood and juices, like the joint force of all the muscles of your body, acting and reacting, as in a regular course of moderate exercise: nor can any of our draughts and portions *oxygenate* your pulmonic blood, like the inspiration of the salutiferous air of the mountains.

> The first physicians by debauch were made;
> Excess began, and sloth sustains the trade.
> By chace our long-lived fathers earned their food;
> Toil strung the nerves, and purified the blood.
> But we their sons, a pampered race of men,
> Are dwindled down to three score years and ten.
> Better to hunt in fields for health unbought,
> Than fee the Doctor for a nauseous draught.
> The wise for cure on exercise depend:
> God never made his work for man to mend." *Dryden.*

We have said,* that the causes producing chronic diseases arranged themselves under two general heads;—those, which act on the *whole body*, and which affect the stomach in a *secondary* way:—and those, which act *directly* on the stomach, and affect the whole body through the medium of that organ; that to these we might add causes, acting upon the *whole body* and *upon the stomach* at the same time; such, for example, as

A Rakish Life. A rakish life is too well known to need a description. It is often a *halo* of misery, surrounding the brightest genius! To point out its ill effects would be an insult to your understandings. I might as well labour to convince you of the blessings of health, or the advantages of industry. I pass the subject over in silence, only remarking in the words of Martial,

"*Balnea*,† *Vina*, Venus‡ consumunt corpora nostra."

* See page 22.

† *Baths.*—The Romans, of both sexes, spent a great deal of time at the baths; which at first were interwoven with their religion; at last were considered as only refinements in luxury. In the earlier periods of Rome, separate baths were appropriated to each sex. Luxury by degrees thrust out decency, and men and women bathed together. The Emperor Adrian prohibited this indecency. Inclination, by degrees, overcame this prohibition, when Marcus Aurelius forbad it. Heliogabalus favoured the indecorum, till Constantine, who, by the coercive force of the legislative authority, and the rewards and terrors of the christian religion, at last banished it.—*See Dr. Alexander's Hist. of Women.*

‡ Beside the ordinary consumption, which is *a coughing up of purulent matter from*

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Instances of young gentlemen sinking deep into the scandalous habit of drinking ardent spirits are very rare indeed; yet it would not be difficult to prove, that there is, and has been for several years, six times as much ardent spirit expended annually, as in the days of your grandfathers. Unruly wine and ardent spirits have supplanted sober cider. Is it not the case, that some use them of that strength, and in that quantity, which is not consistent with the regular functions of the brain?* Many, warmed by the

*the lungs with a hectic fever*, there is a *nervous* consumption, a marasmus, or *Tabes dorsalis*, of which these are the most striking symptoms;—an irksome feeling of the whole body, with an increased sensibility and moroseness of temper. A painful tenderness of the eyes, with a dimness of sight; and sometimes a suffusion of tears; a ringing of the ears; a disagreeable feeling in the skull, as if the membranes of the brain were twisted.§ Not only a disinclination to study, but an inability to concentrate his ideas on any subject. With a failure of digestion, there is a sinking at the pit of the stomach, and a sensation, as if the whole tract of the bowels, with the *vesica urinaria*, were pulled down, and even scraped. There is a dull pain in the back of the neck, a frigid, disagreeable, shuddering sensation, passing down the back, alternating with internal heat. These symptoms are more distressing in the morning. The causes continuing, the function of digestion is ruined; a leanness and dryness of the body ensue; the countenance has a peculiar sallow cast, with a physiognomy expressive of unhappiness. *Frons læta parum et dejecto lumina vultu.*—Virg. For more information, read Tissot.

§ *Dissections shew, that that process of the Dura mater, which passes between the two hemispheres of the brain, called the falciforum process, is particularly affected. The Pia mater has been found hardened, and to coalesce with the brain.*

* Of ardent spirits and wine.

The art of procuring ardent spirits by distillation was a discovery of the Arabian chemists. They first obtained it from *rice*; whence it took its name *arrac*. At present it is generally procured by the distillation of fermented liquors. In France it is drawn from wines. In England and in Germany, from malt liquors; and in this country and the West India islands from sugar and from molasses. This ardent spirit, from whatever subject it is obtained, is found, if freed from its phlegm and gross oil, to be essentially the same. By repeated distillations this spirit is purified, when it obtains the Arabic name of *alcohol*.

Wine is the fermented juice of the grape, and contains *three* different matters: First, a portion of Must, or unassimilated matter. Secondly, a portion of *Proper* Wine, in which, by means of fermentation, a quantity of alcohol is produced. Thirdly, a portion of Vinegar, produced by too active or too long protracted fermentation. In new wine the *must* will be most abundant; as fermentation advances, the portion of genuine *wine* will be more considerable; if fermentation has all along been properly managed, *vinegar* will not appear in any considerable quantity. From the proportion of these several matters depending on the period and state of the fermentation, the *qualities* of wine may be ascertained.—*See Neumann's Chem.* and *Lewis' Mater. Med.*

The Œnus, or wine of the ancients, that which Paul recommended as good for the

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generosity of youth, may think it consonant with prudence to drink so as to produce that exhiliration of spirits, which takes place just on this side intoxication; but I hesitate not to pronounce, that the repitition of such practices is pernicious to health, and dangerous to morals. Cannot wisdom devise a plan of social intercourse, independent of the stimulus of the bottle?

stomach, was a very different liquor from the wine drank by the English, Irish, and Americans. The wine of the ancients was the pure juice of the grape, rendered active by fermentation; for they were totally ignorant of ardent spirits; whereas our strongest wines contain a fourth part of this fiery spirit, while many of the cheap ones are a vile mixture of deleterious articles, justly ranked among the remote causes of our *nervous* disorders, palsies, and apoplexies. If one gallon of our strongest bodied wines be submitted to distillation, it yields one quart of spirit, that will burn when thrown on the fire. The quantity of sharp vinegar, contained in the same portion of wine, is not so easily ascertained.

*Dram drinking*, says Baron Haller, if persevered in, contracts the stomach itself, and the passage from the stomach into the intestines. It also renders the fibres of the stomach callous and fragile, and insensible to every stimulus, even that of hunger. It contracts the diameter of the vascular system in general. It narrows the air vessels of the lungs, even to a third of their former size. It tends to coagulate all the humours of the body, the aqueous excepted. It produces ossifications of the tendons and arteries, and, in some instances, of the pleura itself, and often brings on schirrus of the whole viscera and glandular system. It induces also tumours, convulsions, and palsy of the nervous system. —*Physiol. l. xix. sect.* 3.

We will now present you with a few experiments, demonstrating the pernicious effects of spirituous and vinous liquors, first on the stomach of brutes and next on the human.

In *Bavaria*, during the years 1797, 1798, and 1799, the scarcity of fodder compelled them to destroy a great number of horses, employed both for the purposes of war and of agriculture. Dr. Pilger availed himself of this opportunity, and made a number of cruel experiments on nearly two hundred horses with arsenic, corrosive sublimate, barytes, opium, belladonna, hemlock, laurel water, *distilled spirits*, *wine*, and *vinegar*. After giving horses brandy, so as not only to exhilirate them, but to make them stagger, and even to drop down; he found on opening them, that it shrivelled and contracted the stomach, gave a bloodshot appearance to the intestines, and produced congestions in the brain. But the effect of *vinegar* was the most remarkable. Concentrated vinegar excited the most dreadful spasms, and produced fatal symptoms. They became extremely weak before death; and in those, which were killed in this extreme weakness, the alimentary canal exhibited very little or no irritability on pricking its fibres.

That vinegar is destructive to the human stomach is known by its effects on plump, healthy females, who from a *silly* desire of looking delicate, that is *sickly*, swallow daily large draughts of vinegar. This *innocent* practice *only* ruins the digestive faculty, and thereby deprives the system of its requisite nourishment! The only standard of beauty is high health. Dr. Beddoes tells us, that in some of the boarding schools in England, a keen appetite and its consequence *embonpoint* is held up by the mistress, as a dreadful

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**Among the causes, which act directly and immediately on the stomach, we mentioned, besides ardent and vinous spirits, certain NARCOTIC substances.**

evil; and that starvation and vinegar are encouraged, instead of being severely denounced. Emaciation, thus induced, leads to consumption.

From what has been said, it appears that some wine makes a twofold attack on our health and happiness. It attacks the stomach, as wine, and returns to the charge in the form of vinegar. Hence, in weakly stomachs, when the *ingesta* are composed chiefly of vegetables, and nearly on the point of acidity, a single glass of wine, nay, half a glass, will turn the whole mass into so much thick vinegar. Then come *magnesia* and *lime water* to neutralize the vinegar bottle! Who but must see the absurdity of throwing a glass of wine into a *dyspeptic* stomach directly after a dinner, composed chiefly of vegetables? Yet it is constantly done to the unspeakable distress of the sufferer, agonizing with wind and acid. Physicians should endeavour to convince such patients, that wind and acid are not the *causes*, but the *consequences* of a torpid, imbecile stomach. They should be told, that when a healthy stomach is moderately filled with vegetables, and *well* roasted, or *well* boiled meat, neither *air*, nor *acid* is to be found in the whole alimentary canal.

OF THE PERNICIOUS EFFECTS OF WINE ON CHILDREN.

The best informed European physicians condemn the practice of giving wine daily to children. It has become a prevalent custom of late, in America, to give a glass of wine to such children, as are old enough to sit at table with their parents. If the opinion of experienced physicians have no weight with parents, the following well conceived experiment, being proof positive of the pernicious effects of wine, may possibly induce some to reflect a little on the subject.

A physician of great eminence in London gave to one of his children a full glass of sherry every day after dinner for a week. The child was about five years old, and had never been accustomed to wine. To another child, nearly of the same age, and under similar circumstances, he gave a large China orange for the same space of time. At the end of a week he found a very material difference in the pulse, the heat of the body, the urine, and the stools of the two children. In the first, the pulse was quickened, the heat increased, the urine high coloured, and the stools *destitute of their usual quantity of bile*; while the second had every appearance, that indicated high health. He then reversed the experiment; to the first mentioned child he gave the orange, and to the other the wine. The effects followed as before;—*a striking and demonstrative proof of the pernicious effects of wine on the constitution of children in full health*.

This accurately executed experiment is related by Mr. Sanford, Surgeon at Worcester in England, and quoted by Dr. Beddoes, in his *Hygëia*; who thus remarks on it, "that the *deficiency of bile* is full evidence of the injurious effect of wine upon the digestive organs, in this double experiment." Yet we find that some physicians have learned their patients to attribute these very complaints to a *redundancy of bile!* and therefore prescribe *salt of wormwood* and *rhubarb*; or *soap*, *rhubarb*, and *aloes*, inducing thereby a farther weakness of the digestive organs, the proximate cause of the disorder. My venerable preceptor, DR. FOTHERGILL, cured such complaints with fresh made *porter*. By the time London porter arrives in this country, it contains too much vinegar to be serviceable in these cases.

*Mahomet*, with a view to temperance, forbad his followers to drink wine; and in order

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NARCOTICS are soporiferous drugs, which induce stupefaction. It is the property of narcotics to exhilirate first, and then to relax and stupify. They invariably debilitate the organs, to which they are *immediately* applied; at length, they have a similar effect on the whole system.* At the head of this class of drugs we place OPIUM, which is the milky juice that exudes from the heads of poppies, when incisions are made in them; and then gradually dried in the sun.

The Turks, who were forbidden by Mahomet to drink wine, intoxicate themselves with opium. It is said that some will eat more than an ounce in a day. We have seen, that nothing so effectually preserves health and prevents disease, as maintaining the tone and regular motions of the digestive organs, provided other parts cooperate; and there is no drug in common use, which renders them so torpid, and which so effectually stagnates their functions, as the inordinate use of opium. After destroying the energy of the stomach, it undermines the powers of all the other organs in succession, even to the organ of *thought*. Travellers inform us, that the visage and general appearance of the opium eaters in Turkey is the most disgusting imaginable; even worse than our most abandoned rum drinkers. Some of these miserable Turks have, however, mind enough left to destroy themselves by the dagger, to prevent living, or rather *breathing*, a few years longer in a state little short of confirmed idiotism; which is the fate of most of them during the latter years of their existence. Thus much for *opium*.——But what shall we say of *Nicotiana*,† our beloved TOBACCO?

to correct their savage custom of eating raw flesh, as do the Abyssinians at this day, he allowed them to eat any thing, that had *passed through fire*; meaning whatever had undergone the process of cookery. A century or two after his death, the chemists of his country discovered the art of drawing ardent spirits from *rice* by distillation. When these Mahometans were reproached for intoxicating themselves with this spirit, which they called *arrac*, they replied, that *it had passed through fire*, and was therefore agreeable to the laws of Mahomet, as expressed in the Koran.

* *Betel* is a root which the Asiatics make use of, as we do Tobacco. It is chewed by men, women, and children; Gensang, Panax quinquefolium, is used by the Chinese. They have, beside, a compositiom, the ingredients and proportions of which we are ignorant.

† NICOTIANA, so called from *Jacobus Nicotius*, ambassador to the court of Portugal from Francis II. king of France. Nicotius bought some seeds of this plant from a Dutchman

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With what caution should a man proceed in attacking a favourite of the people? A prudent man, one who wishes to sail quietly down the popular stream, would be disposed rather to flatter and applaud the object of their affections. But an honest man, who differs a little from him, commonly designated as a prudent one, never flatters. He will give the true character of a dangerous inmate; and warn his friend of the consequences of cherishing a viper in his bosom. You already perceive, that although we would give "fair play," even to a treacherous enemy, yet Tobacco has done, and is secretly doing too much mischief to expect any more from us, than a severe trial and rigorous justice.

The great LINNÆUS has, beside his celebrated *artificial* classification, given us a *natural* one. In the *natural* arrangement, he has placed *Tobacco* in the class *Luridæ;* which signifies pale, ghastly, livid, dismal, and fatal. To the same ominous class* belong Fox-glove, Henbane, Deadly-nightshade, Lobelia, and another poisonous plant, bearing the tremendous name of *Atropa*, one of the Furies. Let us examine one of them, viz. TOBACCO, its qualities, and its effects on the constitution.

in 1560, who had just brought them from America. From this seed the plant was produced in France. Sir Francis Drake carried it to England; and Sir Walter Raleigh first brought it into fashion. The dried plant was afterwards imported in great plenty from Tobago, and hence it obtained the name of *Tobacco*, and the species most used is the *Nicotiana Tobaccum*.

Linnæus places this genus of vegetables in the first section of his fifth class, which contains those plants, whose flowers have five stamina and one style, which, expressed in botanical language, is *Pentandria, Monogynia*. This genus has eleven species; one of which is called *Hyoscyamus*, from its agreeing in several of its characters with the deleterious henbane, and some of the species have been so hybridized, as to be confounded with each other.

*Nicholas Monardus*, a German, has written a folio on the virtues of tobacco. It is doubtless a valuable medicine, especially in cases where the *Digitalis* has been used without success. An English physician, Dr. Fowler, used a tincture of tobacco in fifty-two cases of dropsy, and found it efficacious in forty-nine of them. The same physician found it very beneficial in *Dysuries* from gravel. I have used it in such cases with satisfaction.

* Digitalis Purpurea, Fox-glove; Hyoscyamus niger, hen-bane; solanum Dulcamara, Deadly night-shade; Lobelia inflata et Syphilitica; Atropa Belladonna; Conium maculatum, Cicuta or hemlock; Stramonium datura, Apple of Peru, or James' town weed.

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When Tobacco is taken into the mouth for the first time, it creates nausea and extreme disgust. If swallowed, it excites violent convulsions of the stomach and of the bowels, to eject the poison either upward or downward. If it be not very speedily and entirely ejected, it produces great anxiety, vertigo, faintness, and prostration of all the senses; and in some instances death has followed. The oil of this plant is one of the strongest of vegetable poisons, insomuch that we know of no animal, that can resist its mortal effects. These are, without exaggeration, some of the *lurid* qualities of your beloved tobacco! Let us now see, if it can be agreeable to the laws of the animal œconomy, or consonant to common sense, that a plant, with such qualities, can act otherwise than detrimental to the tender constitutions of *young* persons.

The human organs are endowed with a faculty of selecting certain wholesome articles; and our digestive apparatus of assimilating and changing them into our own nature and substance. Besides this nutritive faculty, our organs are endowed with a repulsive one; with certain instincts or perceptions, by which they reject whatever is unwholesome or pernicious to our well being. These powers and faculties, purely instinctive, are more or less possessed by every *healthy* animal. Man, endued with reason, has these instincts in less perfection than the brutes.

The organs of the senses are so many guards or sentinels, placed at those avenues where death is most likely to enter. For illustration;—let us suppose a man cast ashore on some uninhabited island, and roaming among unknown fruits and herbs with a desire to satisfy his hunger; he knows not whether, what he finds be wholesome or poisonous. What *naturally* follows? The first examination, which the vegetable undergoes, is that of the *eye;* if it incur its displeasure by looking disagreeable and forbidding, even this may induce him to throw it away; but if it be agreeable to the sense of seeing, it is next submitted to the examination of the *smell*, which not unfrequently discovers latent mischief concealed from the sight; if not displeasing to the sight, nor disagreeable to the smell, he readily submits it to the scrutiny of the next guard, the *tongue;* and if the taste too approbate the choice, he no longer hesitates, but, eating it, conveys it into his stomach

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and intestines; both of which, like faithful body guards, are endowed with a nice perception and prompt action, by which, if what was eaten as wholesome food, should, notwithstanding all the former examinations, still possess a latent quality, injurious to life, the stomach is stimulated to reject it upward, or the intestines to expel it downwards. These internal perceptions and consequent exertions are the first and most simple acts of nature, being purely instinctive, constituting what physicians call the "*vis medicatrix naturæ*," or reaction of the offended system.*

Let us suppose, that our hungry adventurer had fallen on the tobacco plant; he would find nothing forbidding in its appearance; to his smell it would be rather ungrateful; to his taste so nauseating, that it is surprising, how the same man ever ventured to taste green tobacco twice; but if taken into his stomach, convulsions, fainting, and a temporary loss of his senses follow; accompanied with violent and nasty operations. If that, which is wholesome, affect the senses of animals with pleasure, and invite them to convert it into their own juices; and if that, which is unwholesome, excite disgust in smell, taste, and appetite, then would our adventurer rank this herb among poisons, and note it as one of those, which nature forbade him to use. Yet man, by perverting his nature, has learned to love it! and when perverted nature excites a desire, that appetite or desire is inordinate and ungovernable; for the reaction or physical resistance to evil will, like that of the moral, lessen in proportion to the repetition of the attacks; and then those guards of health, already mentioned, desert nature, and go over to the side of her enemy; and thus we see how intemperate drinking, and immoderate smoking began their destructive career.

The first effect of tobacco on those, who have surmounted the natural abhorrence of it; and who have not only learned to endure it, but even to love it, and who have already commenced the offensive custom of chewing or smoking, is either a waste or vitiation of the *saliva*.

The *saliva* or spittle is secreted by a complex glandular appa-

* See Mr. Mudge's essay on the *Vis Vitæ*, and Gaub. Patholog.



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ratus from the most refined arterial blood, and constantly distils into the mouth in health; and from the mouth into the stomach, at the rate of twelve ounces a day.* It very much resembles the gastric juice in the stomach; and its importance in digestion may be imagined, after listening to the words of the great BOERHAAVE. "Whenever the saliva is lavishly spit away, we remove one of the strongest causes of hunger and digestion. The chyle prepared without this fluid is depraved, and the blood is vitiated for want of it. I once tried," says this great philosopher and consummate physician, "an experiment on myself, by spitting out all my saliva; the consequence was, that I lost my appetite.† *Hence we see the pernicious effects of chewing and smoking tobacco.* I am of opinion, that *smoking tobacco is very pernicious to lean and hypocondriacal persons*, by destroying their appetite and weakening digestion. When this celebrated plant was first brought into use in Europe, it was cried up for a certain antidote to hunger; *but it was soon observed, that the number of hypochondriacal and* CONSUMPTIVE PEOPLE *were greatly increased by its use.*‡ The celebrated CULLEN says, a constant chewing of tobacco destroys the appetite by depriving the constitution of too much saliva.§

One of the kings of Spain was afflicted with a very offensive breath; to remedy which the physicians advised his majesty to chew a composition of gum mastic, ambergrease, and other perfumes; the use of which occasioned a great expenditure of saliva. The courtiers, either out of compliment to their sovereign, or, what is more probable, from the vanity of imitating their superiors, went very generally into the same custom. The consequence was, that they, who followed the fashion with most ardour, lost their appetites, and became emaciated, and *consumptions* increased so fast among them, that the practice was forbidden by royal edict.

* Boerhaave's Academ. Lectures.

† Females, who spin flax, and the manufacturers of straw bonnets, suffer from the same cause.

‡ Boerhaave's Academ. Lectures.

§ Cullen's Materia Medica.

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Some do not eject the saliva; but prefer swallowing the unwholesome mixture, which seldom fails to induce faintness, palpitations of the heart, trembling of the limbs, and sooner or later some serious chronical inconvenience.

After what has been said, who can doubt of the bad effects of constant application of powdered tobacco to the delicate membrane of the nose; especially if they know what a thin partition divides the olfactory cavity from the brain?*

I have been a Professor in this University twenty-three years, and can say, as a physician, that I never observed so many pallid faces, and so many marks of declining health; nor ever knew so many hectical habits and consumptive affections, as of late years; and I trace this alarming inroad on your young constitutions principally to the pernicious custom of *smoking* CIGARS.†

It is allowed by all, that since the foundation of this college the custom of smoking never was so general; it is conceded by all, that individuals never pushed the fashion to such excess; and it is confessed by all, that the inhabitants of this place never appeared so pallid, languid, and unhealthy. I will not say with some, that symptoms of languor have been discernible in your public performances; nor am I disposed to attribute it wholly to the causes mentioned in this lecture. I believe some of you study more, than is consistent with health; and exercise less, than is necessary for persons of your age. I feel a particular solicitude for such worthy characters, as become sickly by indiscreet diligence; and I entreat them to consider, that the habit of smoking

* Too constant use of strong *snuff* brought on a disorder of the head, which was thought to have shortened the life of a celebrated divine and accomplished gentleman; "CUJUS ETIAM A LINGUA MELLE DULCIOR FLUEBAT ORATIO;"—written under the engraved likeness of the late Rev. Dr. Samuel Cooper, of Boston.—See the note, page 6.

† *Cigar*, from the Spanish *Cigarro*, a little roll or tube of tobacco; *Tabaci folia in tubulum convoluta*. A cigar is a leaf of tobacco formed into a small twisted roll, somewhat larger than a pipe stem, of about six inches long. The smoke is conveyed through the winding folds, which prevent it from expanding; there is, however, a small aperture made through the middle by a wire. The cigar preceded the invention of the pipe. The best come from the Havana; those most esteemed are made in the convents; and immense numbers are manufactured in America, principally by women; and the manufacture is increasing daily, and of course their use.

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increases *muscular* indolence. Nor is this all. Smoking creates an unnatural thirst, and leads to the use of spirituous liquors. I will not vouch for the truth of the common observation, that great smokers are generally tipplers. They appear to be, however, different strands of the same rope.

Do you not, GENTLEMEN, see clearly, that this unwholesome, idle custom includes the insidious effects of indolence; the deleterious effects of a powerful narcotic fumigation; and the pernicious effects, consequent to the use of ardent and vinous spirits; destructive agents to men, but which act with redoubled force on the more susceptible frames of youth. I appeal to experience. I ask whether he, who indulges himself in this way, does not awake in the morning hot, restless, and dissatisfied with himself? The sound of the prayer-bell grates his nerves; even the

> "prime cheerer, light,
> Of all material beings first and best,"*

is unwelcome. He dresses with languor and fretfulness; his mouth is clammy and bitter; his head aches; and his stomach is uneasy, till composed a little by some warm tea or coffee. After stretching and yawning, he tries to numb his irksome feelings by a *cigar* and a glass of wine, or diluted brandy. These disagreeable sensations will however come and go through the course of the day, in spite of all his soporifics. By evening a handful of *cigars*, a few glasses of wine, &c. remove, by their stronger stimulus, these troublesome sensations; when he tumbles into bed; and rises next morning with similar feelings, and pursues the same course to get rid of them.

I am entirely convinced, that smoking and chewing injures ultimately the hearing, smell, taste, and teeth. "*Good teeth*," says Hippocrates, "*conduce to long life*;" because he, who does not masticate his food properly, and mix it thoroughly with a due portion of saliva, will find his digestion fail; and this failure will gradually open the avenues to death.

The practice of smoking is productive of indolence; and tends

* THOMSON.

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to confirm the lazy in their laziness.† Instead of exercising in the open air, as formerly, you sit down before large fires and smoke tobacco. This hot fumigation opens the pores of the head, throat, neck, and chest; and you pass out in a reeking sweat into a damp, cold atmosphere; the patulent pores are suddenly closed; hence arise disorders of the head, throat, and lungs. These causes, cooperating with those already mentioned, produce those hectical symptoms and consumptive complaints, that have been multiplying among you to an alarming degree; for this obnoxious custom includes the destructive effects of indolence, and the pernicious effects of the too frequent use of vinous and ardent spirits; agents, destructive to full grown men; but which act with redoubled force on the more susceptible frames of young gentlemen in the spring of life.

Some have said, and the observation carries with it a handsome compliment, "that smoking cannot be an evil custom, seeing most of the clergy follow it." I am mortified that such authority can be adduced to oppose our advice. I will nevertheless venture to warn you, who expect to be clothed with the sacred function, against this inconvenient practice, until you are at least fifty years of age. As a sedentary man advances in life, he perspires less, while his lungs labour more. There is an accumulation of viscid phlegm among the inert and almost insensible solids of the lungs in elderly people, which in our cold months, especially in February and March, produces a kind of *chronic catarrh*, or humoral asthma; for which smoking is beneficial. Here tobacco is a safe and efficacious pectoral. There is, however, a doleful difference between the case of a man of sixty-five taking three or four pipes of tobacco in twenty-four hours, and a boy of seventeen, who uses ten or a dozen cigars in that time. In one, the cold and inert fibre is warmed and animated to throw off an offensive load; in the other, it is adding fuel to fire; and irritating glands already sufficiently stimulated by his youthful nature.

* The gentlemen of the clergy drink sparingly, even of wine;

† "When a man does not think, he smokes."—*Mad. de Stael.*

* Those paragraphs, marked with an asterisk, have been added since the delivery of the lecture.

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but many, who indulge in smoking, drink enormous quantities of hot tea,* which BOERHAAVE observes to be one of the pernicious consequences of smoking tobacco; as it assists to bring on hypochondriac and other dismal disorders. By forbearing to do what may innocently be done, we may add hourly new vigour to resolution. I can hardly believe there ever was a rigidly virtuous man, who became a slave to tobacco. To set the mind above the appetite, says the British moralist,† is the end of abstinence; and abstinence is the ground-work of virtue. For want of denying early and inflexibly, we may be enticed into the recesses of indulgence, and sloth and despondency may close the passage to our return.

* I hope those of the clergy, who follow remarkably this custom, will receive kindly what is uttered seriously, respectfully, and affectionately. Strengthen, I beseech you, the hands, and encourage the hearts of these youth, to relinquish a habit, which you know requires some exertion.‡ If you want an excitement, look at that consumptive young man, whose emaciated figure strikes you with horror; see his forehead covered with drops of sweat; his cheeks painted with a livid crimson; and his eyes sunk; his pulse quick and tremulous; his nails bending over the ends of his fingers; and the palms of his hands dry and hot to the touch. His breath offensive, quick, and laborious; his cough

* COFFEE and TEA are articles friendly to morals, as they frequently exclude the use of spirituous liquors. The French and Spaniards take coffee directly after dinner, instead of wine; a custom worthy of imitation. A physician is often asked, which is most wholesome, tea or coffee? Either of them, made very strong, must be injurious; both certainly suspend the inclination to sleep, and impede digestion. Tea or coffee of moderate strength, and drank with discretion, is found by experience friendly to the human constitution. *Old smokers* will sometimes drink a dozen dishes of tea; and destroy thereby the tone of their stomachs. *Young smokers* also suffer from the same cause. One of the most speedy methods of weakening the stomach is to smoke cigars; and at the same time *swill* tea or coffee, and eat an enormous pile of toast, swimming in butter. We have said already, that the use of the saliva was to assist, with the bile, to mix butter and fat with the watery part of our food; but in such a meal the saliva is either spit out or vitiated; and the incongruous mass is left to sour; because the principal mean of assimilation is withdrawn.

† Johnson.

‡ See the introduction, page 6.

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incessant, scarcely allowing him time to tell you, that he smoked cigars without number, drank brandy and water, and wine; played daily on the flute, and coming one night from a crowded musical meeting, caught cold; which, being neglected, brought on a cough, short breath, expectoration of purulent matter, and night sweats; which soon hurried him on to what you see.*

Of the *seemliness* or *decorum* of the practice of smoking and chewing tobacco more may be said, than you will have patience to hear. The great BOERHAAVE observes, that it is allowed by the universal consent of the more civilized nations, that spitting in company is both unmannerly and offensive; insomuch that among the inhabitants of the East it was held in the highest detestation and abhorrence! A physician should never use tobacco in *any form*, as some weak patients will faint at the smell.†

The fashion of smoking tobacco was introduced into England by Sir WALTER RALEIGH, in the reign of JAMES I. The custom was followed by almost all the nobility and high officers of the realm, to the great dissatisfaction of the fastidious monarch. So universally prevalent was this fashion, that his majesty could not readily find any one to write or preach against it. He therefore wrote a tract himself, which he entitled, "*a Counter Blast to Tobacco;*" a copy of which may be seen in the library of this University. After exposing in strong language the unhealthiness and offensiveness of this practice, he closes with this ROYAL COUNTER BLAST.—"*It is a custom, loathsome to the* EYE, *hateful to the* NOSE, *harmful to the* BRAIN, *dangerous to the* LUNGS; *and in the black, stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit, that is bottomless!*"

To conclude.——The moral to be deduced from our whole Lecture, is *the necessity of avoiding all* predisposing *causes to* NERVOUS DISORDERS; *and obviating the* remote *causes of* CONSUMPTION. Quit then this pernicious habit, I entreat you.——

* Compare this with FOTHERGILL's description of consumption, in LETTSOM's edition of his works.

† The custom of smoking has, for a considerable time past, been totally banished from all polite companies in England and France. It is there confined to taverns and alehouses.

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Take all your cigars and tobacco; and in some calm evening, carry them onto* the common, and there sacrifice them to *health, cleanliness*, and *decorum*.——But, should perversity withstand all the arguments adduced, we have yet one in reserve, which is irresistible. The dangerous tendency of these practices no one can doubt; therefore abandon the custom, LEST YOU PIERCE WITH ANGUISH THE HEARTS OF YOUR AFFECTIONATE PARENTS!

* "*carry them* ONTO *the common.*"† This compound preposition, as used here, has been attacked and defended by two able philologists.—*See Pickering's Vocabulary, and Cambridge Literary Miscellany*, vol. ii. page 217.

Prepositions denote the relation of *place* and of *motion*. ONTO and *into* denote *entrance*; but they are not synonymous. Neither *to*,—*in*,—*on*,—*into*,—or—*upon* expresses exactly the meaning conveyed to the mind by *onto*. For example; the regiment marched *on* the field of battle: or *to* the field of battle, conveys not the same idea, as—the regiment marched (from a distance) *onto* the field of battle. Again,—he went into the capitol at Washington; and soon after *onto* the floor of Congress, cannot be so well expressed by any other word.—The juggler stepped *onto* a slack wire, and then tumbled *onto* the floor, conveys a different idea from the man tumbling *on*, or *upon* the floor. By this neat compound preposition, we can express our meaning without ambiguity or awkward circumlocution. Analogy is clearly in its favour; and precision requires its use.—*See remarks on the prepositions* into *and* onto, *in the Literary Miscellany, printed by W. Hilliard*, 1806.

† *What is here called the college* "COMMON," *is, in some parts of the British dominions, called the college* GREEN.

FINIS.

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